EL HACHEMI BOUALI, PH.D.

ASSISTANT PROFESSOR OF GEOSCIENCES, NEVADA STATE COLLEGE

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Henderson, NV 89002

EDUCATION

PhD	Michigan Technological University, Geology	August 2018
MS	Western Michigan University, Geoscience	December 2013
BS	Western Michigan University, Geophysics Graduated Cum Laude, Lee Honors College Minor in Mathematics and Astronomy	April 2011
AS	Kalamazoo Valley Community College	May 2007

POSITIONS

Assistant Professor of Geosciences
Nevada State College, Henderson, NV — 2020 to present
Department of Physical and Life Sciences

Thomas McKenna Meredith '48 Postdoctoral Fellow in Environmental Science
Trinity College, Hartford, CT — 2018 to 2020
Environmental Science Program

Independent Remote Sensing Contractor
Clients: Michigan Technological University and World Bank — 2018
Project: Critical Slope Monitoring using InSAR and COSI-Corr in Southeast Asia

NASA Earth and Space Science Fellow
Michigan Technological University, Houghton, MI — 2016 to 2018
Department of Geological & Mining Engineering & Sciences

Geological Mapping Technician
National Parks Service, GeoCorps (2015), and AmeriCorps (2016) — 2015 and 2016
Pictured Rocks National Lakeshore

Graduate Research Assistant
Michigan Technological University, Houghton, MI — 2014 to 2016
Department of Geological & Mining Engineering & Sciences

Graduate Teaching and Research Assistant
Western Michigan University, Kalamazoo, MI 2011 to 2013
Department of Geosciences

ACADEMIC ADVISING AND COMMITTEES

Shawna Hunnicutt, B.S. Biology and B.S. Environmental and Resource Sciences, Nevada State College. Thesis: TBD. Expected graduation May 2023.

Chuck Sweeney, B.S. Environmental Science, Trinity College. Thesis: Using ground penetrating radar to map subsurface glacial delta deposits. Graduated May 2020.

Nicole E. Towner, B.S. Environmental Science, Trinity College. Thesis: Macroscopic charcoal records from soils in western Iowa. Graduated May 2019.

AWARDS AND HONORS ($144,667)

Awards and Scholarships Earned by Undergraduate Student Mentees

2022 Shawna Hunnicutt, Undergrad Research Opportunities Program, NSHE ($8,200)
2019 Chuck Sweeney, Summer Research Program, Trinity College ($3,500)

External Fellowships, Grants, and Awards

2022 Nevada INBRE Technology Access Award ($2,652)
2018 U.S. Society on Dams Scholarship: 1st Place Finalist ($8,000)
2016-2018 NASA Earth and Space Science Fellowship ($75,000)
2016 Segal AmeriCorps Education Award ($1,515)
2016 Richard W. and June T. Lemke Scholarship, AEG Foundation ($300)
2015-2016 Michigan Space Grant Consortium Graduate Fellowship ($10,000)
2015 Travel Grant, GSA North-Central Section ($300)
2014 Platinum Corporate Sponsor Award, AEG Foundation ($300)

Academic Awards

2021-2022 Sponsored Projects Seed Award, Nevada State College ($2,000)
2018-2019 Community Learning Faculty Fellow, Trinity College ($1,000)
2018 Dean's Award for Outstanding Scholarship, MTU
2014, 2015, 2016 Travel Grant, MTU Graduate Student Government ($900)
2013 W. David Kuenzi Memorial Award, WMU Department of Geosciences
2011, 2012 WMU Department of Geosciences' Appreciation Scholarship
2011 Undergraduate Presidential Scholar in Geosciences, WMU
2011 Senior Honor Award in Geophysics, WMU Department of Geosciences
2011 Distinguished Student Service Award, WMU Department of Geosciences
2010 L. Schmaltz Undergraduate Scholarship in Geology, WMU Dept. of Geosciences
2007-2010 C.L. Remynse Scholarship, Kalamazoo Community Foundation ($30,000)
2007 Transfer Academic Scholarship, KVCC and WMU ($1,000)

PUBLICATIONS

*Undergraduate student

Peer-Reviewed Publications

VanderMeer S, **Bouali EH**, Kehew A, Sauck W, and Gillespie R (2022) Buried bedrock valleys revealed in Michigan's central Upper Peninsula using horizontal-to-vertical spectral ratio passive seismic method. *Journal of Great Lakes Research*, In Press Corrected Proof. https://doi.org/10.1016/j.jglr.2022.06.007.

Aswathi J, Sajinkumar KS, Rajaneesh A, Oommen T, **Bouali EH**, Binojkumar RB, Rani VR, Thomas J, Thrivikramji KP, Ajin RS, and Abioui M (2022) Furthering the precision of RUSLE soil erosion with PSInSAR data: An innovative model. *Geocarto International*, Online accepted author version. https://doi.org/10.1080/10106049.2022.2105407.

Aswathi J, Binojkumar RB, Oommen T, **Bouali EH**, Sajinkumar KS (2022) InSAR as a tool for monitoring hydropower projects: A review. *Energy Geoscience*, 3(2):160-171. https://doi.org/10.1016/j.engeos.2021.12.007.

Bouali EH and Sweeney C* (2021) Collapsed and non-collapsed ice-marginal glaciodeltaic morphosequence structure mapped with ground penetrating radar in central Connecticut. *Near Surface Geophysics*, 19(5):583-602. https://doi.org/10.1002/nsg.12170.

Pooja B, Oommen T, Sajinkumar KS, Nair AG, Rajaneesh A, Aswathi J, **Bouali EH**, and Thrivikramji KP (2021) Correspondence of PSInSAR monitoring and Settle3 modelling at Cochin International Airport, SW India. *Applied Geomatics*, https://doi.org/10.1007/s12518-021-00387-y.

Rajaneesh A, Logesh N, Vishnu CL, **Bouali EH**, Oommen T, Midhuna N, and Sajinkumar KS (2021) Monitoring and mapping of shallow landslides in tropical environment using persistent scatterer interferometry: A case study from the Western Ghats, India. *Geomatics*, 1(1):3-17. https://doi.org/10.3390/geomatics1010002.

Sajinkumar KS, Bincy HS, **Bouali EH**, Oommen T, Vishnu CL, Anilkumar Y, Thrivikramji KP, and Keerthy S (2020) Picturing beach erosion and deposition trends using PSInSAR: An example from the non-barred southern west coast of India. *Wetlands Ecology and Management*, https://doi.org/10.1007/s11273-020-09706-3.

Bouali EH, Oommen T, and Escobar-Wolf R (2019) Evidence of landslide activity outside previously-mapped zones as measured using GPS, optical, and SAR data between 2007 and 2017: A case study in the Portuguese Bend landslide complex, California. *Remote Sensing*, 11(8):937. https://doi.org/10.3390/rs11080937.

DePrekel K*, **Bouali EH**, and Oommen T (2018) Monitoring the impact of ground water pumping on infrastructure using geographic information system (GIS) and persistent scatterer interferometry (PSI). *Infrastructures*, 3(4):57. https://doi.org/10.3390/infrastructures3040057.

Bouali EH, Oommen T, and Escobar-Wolf R (2018) Mapping of slow landslides on the Palos Verdes Peninsula using the California landslide inventory and persistent scatterer

interferometry. *Landslides*, 15(3):439-452. https://doi.org/10.1007/s10346-017-0882-z.

Bouali EH, Oommen T, Vitton S, Escobar-Wolf R, and Brooks C (2017) Rockfall Hazard Rating System: Benefits of utilizing remote sensing. *Environmental and Engineering Geoscience*, 23(3):165-177. https://doi.org/10.2113/gseegeosci.23.3.165.

Bouali EH, Oommen T, and Escobar-Wolf R (2016) Interferometric stacking toward geohazard identification and geotechnical asset monitoring. *Infrastructure Systems*, 22(2):05016001. https://doi.org/10.1061/(ASCE)IS.1943-555X.0000281.

Conference Proceedings and Papers

Bouali EH, Oommen T, and Sajinkumar KS (2018) Monitoring India's dams from space: A cost-effective approach using Sentinel-1 radar images. International Dam Safety Conference 2018, Thiruvananthapuram, Kerala, India.

Bouali EH, Oommen T, and Escobar-Wolf R (2017) Structure mapping through spatial and temporal deformation monitoring using persistent scatterer interferometry and geographic information systems. Geotechnical Frontiers 2017, GSP 278:509-519. https://doi.org/10.1061/9780784480458.052.

Book Chapters, Technical Reports, and Articles

Bouali EH (2021) Chapter 3.4 Case History 4: Differential Movement of Casitas Dam. In: Stark TD, Oommen T, and Ning Z (eds.) Remote Sensing for Monitoring Embankments, Dams, and Slopes: Recent Advances, GSP 322. American Society of Civil Engineers, 55-62. https://doi.org/10.1061/9780784415726.

Oommen T, Escobar-Wolf R, and **Bouali EH** (2019) Proactive monitoring and assessment of critical slopes using remote sensing in the transport sector, south Asia. World Bank, Contract #718842, 73 p.

Bouali EH (2018) Numerical analysis of embankment and berm settlement based on InSAR remote sensing measurements. *USSD Dams & Levees: Bulletin of the United States Society on Dams*, Summer 2018, 175:41-43

Oommen T, **Bouali EH**, and Escobar-Wolf R (2018) New paradigm in geotechnical performance monitoring using remote sensing. In: Ilampaturhi K and Robinson RG (eds.) Geotechnical Design and Practice: Selected Topics. Springer Verlag, Singapore, 195-201. https://doi.org/10.1007/978-981-13-0505-4_17.

Escobar-Wolf R, **Bouali EH**, and Oommen T (2016) Risk Assessment. In: Bobrowsky PT and Marker B (eds.) Earth Science Series Encyclopedia of Engineering Geology. Springer International Publishing AG Switzerland, 1-4.

Escobar-Wolf R, **Bouali EH**, Oommen T, Dobson R, Vitton S, Brooks C, and Lautala P (2016) Candidate remote sensing techniques for the different transportation environments, requirements, platforms, and optimal data fusion methods for assessing the state of geotechnical assets. Michigan Technological University, USDOT Cooperative Agreement No. RITARS-14-H-MTU, 152 p.

Escobar-Wolf R, **Bouali EH**, Oommen T, Dobson R, Vitton S, Brooks C, and Lautala P (2015) Final Report: Sustainable geotechnical asset management along the transportation

infrastructure environment using remote sensing. Michigan Technological University, USDOT Cooperative Agreement No. RITARS-14-H-MTU, 137 p. https://rosap.ntl.bts.gov/view/dot/38809.

Bouali EH, Oommen T, and Escobar-Wolf (2015) Ground feature monitoring using satellite imagery. *ASCE Geostrata*, 19(4):52-57.

INVITED TALKS

*Undergraduate student

Bouali EH and Hunnicutt S* (2022) Title TBD. Southern Nevada Agency Partnership Science Research Team Webinar Series, 16 November, Las Vegas, NV.

Hunnicutt S* and **Bouali EH** (2022) Analyses of spring water chemistry and microbiology in the Spring Mountains, Nevada. AEG Annual Meeting, 12-17 September, Las Vegas, NV.

Bouali EH (2020) A geotechnical and remote sensing approach to monitor rock slope stability within a railroad corridor near Caliente, Nevada. AEG Southern Nevada Chapter, 10 November, Las Vegas, NV [virtual].

Bouali EH (2020) Remote sensing and geophysical techniques for shallow earth exploration. Biology and Environmental Science Colloquium, Nevada State College, 17 September, Henderson, NV [virtual].

Bouali EH (2020) Introduction to plate tectonics. Piedmont Virginia Community College, 27 February, Charlottesville, VA.

Bouali EH (2020) Wildfires. Nevada State College, 11 February, Henderson, NV.

Bouali EH (2020) Surface processes and environmental change: Applications combining remote sensing, near-surface geophysics, and traditional fieldwork. SUNY Fredonia, 31 January, Fredonia, NY.

Bouali EH (2020) Natural hazard lifecycle modeling: A long-term, multi-sensor and geophysical approach to studying the impacts of earth surface processes. University of Alaska Anchorage, 21 January, Anchorage, AK.

Bouali EH (2019) Advantages and limitations of remote sensing for landslide detection, mapping, and (ultimately) prediction. Central Connecticut State University, 1 November, New Britain, CT.

Bouali EH (2018) Monitoring unstable slopes using remote sensing and geodetic techniques for sustainable asset management. Thomas McKenna Meredith '48 Lecture in Environmental Science, Trinity College, 19 October, Hartford, CT.

CONFERENCE PRESENTATIONS (PAST 5 YEARS)

*Undergraduate student
†High school student

Hunnicutt S* and **Bouali EH** (2022) Analyses of spring water chemistry and microbiology in the Spring Mountains, Nevada. [Poster] 10th Annual STEM Student Research Poster Symposium, 30 September, Henderson, NV.

Diaz Y*, Rodarte A*, Mora J*, and **Bouali EH** (2022) Impact of groundwater sourced from snowmelt on water parameters at Deer Creek Springs and Harris Springs, Nevada. [Poster] 10th Annual STEM Student Research Poster Symposium, 30 September, Henderson, NV.

Hunnicutt S* and **Bouali EH** (2022) Analyses of spring water chemistry and microbiology in the Spring Mountains, Nevada. [Poster] AEG Annual Meeting, 12-17 September, Las Vegas, NV.

Oommen T, **Bouali EH**, Sajinkumar KS, Corcoran MK, and Dunbar JB (2021) Using radar remote sensing from space to monitor dams. Geo-Extreme 2021: Geotechnical Engineering for Extreme Events, 7-10 November, Savannah, GA.

Andrino G*, Joachim A*, and Bouali EH (2021) Salinity of springs in the Spring Mountains, Nevada. Joint Annual STEM Student Research Poster and UNR Neuroscience Symposium. 7 October, Henderson, NV.

Joachim A*, Andrino G*, and Bouali EH (2021) Quality of spring waters in the Spring Mountains, Nevada. Joint Annual STEM Student Research Poster and UNR Neuroscience Symposium. 7 October, Henderson, NV.

Bouali EH and Sweeney C* (2020) Ice-marginal deltaic deposits of the Cromwell delta in central Connecticut mapped using ground penetrating radar. [Poster] GSA 2020 Connects Online, 26-30 October, Virtual Meeting.

Bouali EH and Sweeney C* (2020) Ice-marginal deltaic deposits of the Cromwell delta in central Connecticut mapped using ground penetrating radar. [Abstract] GSA Joint 69th Annual Southeastern / 55th Annual Northeastern Section Meeting, 20-22 March, Reston, VA. (Meeting canceled due to COVID-19 pandemic)

Radulescu A† and **Bouali EH** (2020) Spatiotemporal mapping and statistical analysis of native, endemic, and invasive florae using vegetation index data from multispectral optical imagery in the Galapagos islands. 72nd Annual Connecticut Science & Engineering Fair, Quinnipiac University, 9-14 March, Hamden, CT.

Sweeney C* and **Bouali EH** (2019) Using ground penetrating radar to map subsurface glacial delta deposits. [Poster] 15th Annual Summer Research Symposium, Trinity College, 24 September, Hartford, CT.

Bouali EH, Oommen T, and Escobar-Wolf R (2018) Landslide mapping using GPS, optical, and radar data: A case study in the Portuguese Bend Landslide Complex, California between 2007 and 2017. AGU Annual Meeting, 10-14 December, Washington, D.C.

Bouali EH, Oommen T, and Escobar-Wolf R (2018) Landslide monitoring at three orders of magnitude: PSI, COSI-Corr, and GPS measurements at the Portuguese Bend Landslide complex in southern California. Joint 2018 AEG Annual Meeting and XIII IAEG Congress, 15-23 September, San Francisco, CA.

Bouali EH, Oommen T, Sajinkumar KS, and Escobar-Wolf R (2018) Satellite InSAR as an initial health assessment tool for dams and reservoirs. USSD Annual Conference and Exhibition, 30 April-4 May, Miami, FL.

Bouali EH (2018) Numerical analysis of embankment and berm settlement based on InSAR remote sensing measurements. USSD Annual Conference and Exhibition, 30 April-4 May, Miami, FL.

DePrekel K*, **Bouali EH**, and Oommen T (2018) Monitoring the impact of ground water pumping on infrastructure using geographic information system (GIS) and persistent scatterer interferometry (PSI). [Poster] Undergraduate Research Symposium, 23 March, Houghton, MI.

Bouali EH, Oommen T, and Escobar-Wolf R (2017) Landslide life-cycle monitoring and failure prediction using satellite remote sensing. AGU Annual Meeting, 11-15 December, New Orleans, LA.

Bouali EH, Oommen T, and Escobar-Wolf R (2017) Slow landslide identification using InSAR to update the California landslide inventory on the Palos Verdes Peninsula. GSA Annual Meeting, 22-25 October, Seattle, WA.

Bouali EH, Oommen T, and Escobar-Wolf R (2017) Monitoring the Casitas Dam in Ventura County, California with satellite InSAR. AEG Annual Meeting, 10-16 September, Colorado Springs, CO.

ACADEMIC SERVICE AND LEADERSHIP EXPERIENCE

2022-2024	LAS Faculty Senator, NSC
2022	Poster and Oral Presentation Judge, Geosymposium, UNLV
2022	LAS Awards Committee Member, NSC
2021	Essential Learning Outcomes in the Core Curriculum Workshop, NSC
2021	Poster Judge, Undergraduate Research and Creative Works Conference, NSC
2020-2022	LAS Strategic Planning Committee, Low Enrollment Programs, NSC
2020-2021	Senate Committee of Part-Time Faculty Affairs, NSC
2019-2020	Health and Wellness Committee, Trinity College
2011-2013	Graduate Member of Academic Integrity Committee, WMU
2010-2011	Undergraduate Member of Academic Integrity Committee, WMU
2010-2011	Geology Club President, WMU Department of Geosciences
2009-2010	Student Volunteer, Michigan Geological Repository for Research & Education

PROFESSIONAL APPOINTMENTS & SERVICE

2022-present	Treasurer, AEG Southern Nevada Chapter
2021-2022	Interim Treasurer, AEG Southern Nevada Chapter
2021-present	AEG 2022 Annual Meeting Steering Committee Member
2021-present	AEG Southern Nevada Chapter Advisory Board, Member at Large
2019-present	Remote Sensing (ISSN 2072-4292) Reviewer Board

2017 Technical Session Moderator. AEG Annual Meeting, TS #22: InSAR Applications for Geology and Geological Engineering.
2017 Panel Member. RIVIT Conference, UAS Technology Challenges & Opportunity.
2017 Student Volunteer, AEG Annual Meeting in Colorado Springs, CO
2016 Technical Session Moderator. AEG Annual Meeting, TS #12: Application of Geophysics to Geotechnical Investigations, TS #13: Geophysics and Remote Sensing in Engineering Geology: Case Studies and Advances using Geophysics, Drones and Satellites.
2016 Student Volunteer, AEG Annual Meeting in Kona, HI
2015 Student Volunteer, AEG Annual Meeting in Pittsburgh, PA

Journal Peer-Reviewer (54 articles)
AIMS Geoscience (1); Applied Sciences (7); Climate (1); Geo-Extreme (1); Geomatics, Natural Hazards and Risk (1); Forests (2); ISPRS International Journal of Geo-Information (1); Journal of the Optical Society of America (1); Remote Sensing (34); Sustainability (2); Water (3)

PROFESSIONAL DEVELOPMENT

2022 Accessibility Integration Summer Course, Center for Teaching & Learning Excellence, June-July 2022, Nevada State College, Henderson, Nevada.

2021 Certificate of Effective College Instruction, Association of College and University Educators, completion of 25-module course, September 2020-April 2021, Nevada State College, Henderson, Nevada.

2020-2021 Safe Zone Training, Scorpion Diversity Academy, Nevada State College, October 2020 – May 2021, Henderson, Nevada.

2020 New Faculty Orientation, Nevada State College, 12-13 August, Henderson, Nevada.

2019 Understanding our Students in Teaching and Advising Workshop, Trinity College, 14 May, Hartford, Connecticut.

2018 New Faculty Orientation, Trinity College, 27-28 August, Hartford, Connecticut.

2017 NextProf Science Future Faculty Workshop, University of Michigan, 2-5 May, Ann Arbor, Michigan.

COURSES TAUGHT

Department of Physical and Life Sciences, Nevada State College
BIOL 492 Undergraduate Research
BIOL/ENV 494 Environmental Science/Biology Colloquium (seminar)
ENV 492 Undergraduate Research
GEOL 101A Exploring Planet Earth Lecture
GEOL 101L Exploring Planet Earth Lab

GEOL 333 Principles of Geomorphology (lecture and lab)
GEOL 405 Geology of the National Parks (lecture)
NRES 322 Soils (lecture)
NRES 467 Regional and Global Issues in Environmental Science (lecture)

Environmental Science Program, Trinity College

ENVS 112 Introduction to Earth Science (lecture)
ENVS 115 Natural Disasters (lecture)
ENVS 310 Environmental Geophysics (lecture)
ENVS 399 Independent Study
ENVS 425 Research in Environmental Science Lab
ENVS 466 Teaching Assistantship
ENVS 497 Honors Research

Department of Geological Sciences, Western Michigan University

GEOL 1000 Earth Studies (lab)
GEOS 1310 Historical Geology (lab)
GEOS 4300 Structural Geology (lab)
GEOS 4380 Field Studies in Geology (field course in Upper Peninsula of Michigan)
GEOS 4390 Geological Mapping (field course in Upper Peninsula of Michigan)
GEOS 5600 Introduction to Geophysics (lab)

PROFESSIONAL AFFILIATIONS (CURRENT)

American Institute of Professional Geologists
Association of Environmental & Engineering Geologists + Southern Nevada Chapter
Center for Inquiry

SOCIAL MEDIA CONTACTS

Research Gate https://www.researchgate.net/profile/El_Hachemi_Bouali
LinkedIn https://www.linkedin.com/in/el-hachemi-bouali-60b385149/
Twitter @BoualiHachemi
ORCID iD https://orcid.org/0000-0002-4663-3191